IN THE SPECIFICATION:

Please replace the paragraph beginning at page 1, line 8, with the following rewritten paragraph:

--This application is a continuation-in-part of U.S. Patent Application Serial No. 09/205,809, filed December 4, 1998 ~~(pending)~~ (U.S. Patent No. 6,324,183), a continuation-in-part of U.S. Patent Application Serial No. 09/443,712, filed November 19, 1999 (pending), and claims the benefit of U.S. Provisional Patent Application Serial No. 60/127,889, filed April 5, 1999, the disclosures of each of which are incorporated herein by reference in their entirety.--

A1

Please replace the paragraph beginning at page 3, line 14, with the following rewritten paragraph:

--It will be further appreciated that such telephony service databases may also be employed to provide communication service subscribers the flexibility to easily port their service from one communication service provider to another (i.e., number portability or local number portability). The application of such SCP-type database services is not limited to the traditional wired public switched telephone network (PSTN), but is also widely implemented in the wireless telecommunications industry. Typical wireless network communication database applications ~~include;~~ include: home location registers (HLRs), visitor location registers (VLRs), authentication centers (AuCs), and equipment identification registers (EIRs). In general, SCPs are the network elements that include database systems for providing the services discussed above.--

A2

Please replace the paragraph beginning at page 4, line 9, with the following rewritten paragraph:

--With particular regard to traditional SCP network database elements, those skilled in the art of telecommunication network services will appreciate that an SCP is typically comprised of both a front end computer processor system and a back end database system. That is, the SCP front end processor (FEP) system typically does not store or contain the bulk data or information, but instead is the interface to a mainframe or minicomputer system that holds the actual database. Typically, there is a one-to-one correspondence between each FEP and an associated back end computing platform. In a signaling system 7 (SS7) signaling network environment, communication between an SCP front end and other nodes in the SS7 network is accomplished via dedicated SS7 communication links, while communication between the SCP front end and mainframe database back end is typically ~~affected~~ effected via a TCP/IP connection (or X.25 in older legacy systems). However, it should be noted that even within the telecommunications industry it is not uncommon to hear the term SCP used to describe the combination of front-end processors and mainframe back end database systems.--

A3

Please replace the paragraph beginning at page 15, line 11, with the following rewritten paragraph:

--Focusing now on LIM card functionality, it will be appreciated that LIM **502** is comprised of a number of sub-component processes including, but not ~~limited to;~~ limited to, SS7 MTP level 1 and 2 processes **512**, an I/O buffer or queue **514**, an SS7 MTP level 3 HMDC process **516**, and an HMDT process **518**. MTP level 1 and 2 processes **512** provide the facilities necessary to send and receive digital data over a particular physical media / physical interface, as well as to provide error detection / correction and sequenced delivery of all SS7 message packets. I/O queue **514** provides for temporary

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buffering of incoming and outgoing signaling message packets. MTP level 3 HMDC process **516** receives signaling messages from the lower processing layers and performs a discrimination function, effectively determining whether an incoming SS7 message packet requires internal processing or is simply to be through switched. HMDT process **518** handles internal routing of SS7 message packets that require additional processing prior to final routing. Once again, it should be appreciated that a LIM card may contain more functional processes than those described above. The above discussion is limited to LIM functionality associated with the basic processing of in-bound signaling messages.--

Please replace the paragraph beginning at page 30, line 22, with the following rewritten paragraph:

--The network configuration shown in Figure 8 is one of the ~~more simple~~ simpler implementations of an FEP routing node of the present invention. When compared with the prior art network configuration illustrated in Figure 1, it will be appreciated that the inclusion of FEP routing node **500** in Figure 8 allows each of the provisioned SCPs **220**, **224**, and **228** to eliminate dedicated, internal FEP modules. Consequently, SCP **220** simply includes a computing platform **232** that serves a database back end processor. In a similar manner, SCP **224** and SCP **228** also include back end database computing platforms. Once again, it should be noted that each SCP **220**, **224**, and **228** is not required to implement a separate FEP module.--

IN THE CLAIMS:

Please amend the claims as follows:

1. (Currently Amended) A network element for providing service control point (SCP) or database node front end processing (FEP) service and routing data packets through a communications network, the network element comprising:

(a) a first communication module capable of transmitting data packets to and receiving data packets from a first communications network;

(b) a second communication module capable of transmitting data packets to and receiving data packets from a second communications network;

(c) a packet discrimination process for determining whether a data packet received from one of the first and second communications networks is intended for an SCP or database node that is provisioned to receive front end processing (FEP) service;

(d) a database access control (DAC) database containing information related to SCP or database nodes that are provisioned to receive FEP service; and

(e) a DAC process for querying the DAC database and modifying the received packet to include information returned by the DAC database, wherein the network element is adapted to provide FEP service for a plurality of SCP or database nodes being separate from the network element and to eliminate the need for the SCP or database nodes to have individual front end processors.

2. (Original) The network element of claim 1 wherein the received data packet is a signaling system 7 (SS7) signaling message.

3. (Original) The network element of claim 2 wherein the SS7 signaling message is a transaction capabilities application part (TCAP) message signaling unit (MSU).

4. (Original) The network element of claim 3 wherein the TCAP MSU contains a database query message.

5. (Original) The network element of claim 1 wherein the first communications network is an SS7 network.

6. (Original) The network element of claim 1 wherein the second communications network is an Internet protocol (IP) network.

7. (Original) The network element of claim 1 wherein the second communications network is an asynchronous transfer mode (ATM) network.

8. (Original) The network element of claim 1 wherein the first communication module is a signaling system 7 (SS7) link interface module (LIM).

9. (Original) The network element of claim 1 wherein the second communication module is an Internet protocol (IP) database communication module (DCM).

10. (Original) The network element of claim 1 wherein the DAC database includes a plurality of records and each DAC database record includes an IP network address associated with an SCP or database node.

11. (Original) The network element of claim 1 wherein the DAC database includes a plurality of records and each DAC database record includes operational status information associated with an SCP or database node.

12. (Original) The network element of claim 1 wherein the DAC database includes a plurality of records and each DAC database record includes ownership information associated with an SCP or database node.

13. (Original) The network element of claim 1 wherein the DAC database includes a plurality of records and each DAC database record includes database protocol information associated with an SCP or database node.

14. (Original) The network element of claim 1 wherein the DAC database includes a plurality of records and each DAC database record includes service type identification information associated with an SCP or database node.

15. (Original) The network element of claim 14 wherein the service type identification information identifies an advanced intelligent network (AIN) service.

16. (Original) The network element of claim 14 wherein the service type identification information is a translation type (TT) value.

17. (Original) The network element of claim 14 wherein the service type identification information is a subsystem number (SSN).

18. (Original) The network element of claim 14 wherein the service type identification information identifies a calling name (CNAM) service.

19. (Original) The network element of claim 14 wherein the service type identification information identifies a line information database (LIDB) service.

20. (Original) The network element of claim 14 wherein the service type identification information identifies a toll free number (800) service.

21. (Original) The network element of claim 14 wherein the service type identification information identifies a local number portability (LNP) service.

22. (Original) The network element of claim 14 wherein the service type identification information identifies a presence service.

23. (Original) The network element of claim 8 wherein the packet discrimination process resides on the LIM.

24. (Original) The network element of claim 1 wherein the DAC database is integral with and contained within the network element.

25. (Original) The network element of claim 1 wherein the DAC database is located on an external database server communicatively coupled to the network element.

26. (Original) The network element of claim 1 wherein data that comprises the DAC database is maintained in high speed, random access memory.

27. (Original) The network element of claim 1 wherein data that comprises the DAC database is maintained on high speed, optical disc storage media.

28. (Original) The network element of claim 1 including a DAC protocol translation process for modifying the received data packet to include predetermined database protocol information.

29. (Original) The network element of claim 28 wherein the DAC protocol translation process is capable of translating an SCP or database query to or from a structured query language (SQL) database protocol.

30. (Original) The network element of claim 28 wherein the DAC protocol translation process is capable of translating an SCP or database query to or from an open database connectivity (ODBC) database protocol.

31. (Original) The network element of claim 1 wherein the packet discrimination process is adapted to examine a destination network address in the received data packet.

32. (Original) The network element of claim 31 wherein the destination network address is an SS7 destination point code (DPC) and subsystem (SSN).

33. (Original) The network element of claim 32 wherein the SS7 DPC is the same as an SS7 PC assigned to the network element.

34. (Original) The network element of claim 32 wherein the SSN corresponds to a SSN that is provisioned for FEP service.

35. (Original) The network element of claim 1 wherein the packet discrimination process is adapted to examine a translation type (TT) value in the received data packet.

36. (Original) The network element of claim 1 wherein the packet discrimination process is adapted to examine a subsystem number (SSN) value in the received data packet.

37. (Currently Amended) A method for providing service control point (SCP) or database node front end processing service and for routing a data packet in a communications network, the method comprising:

providing, from a first network element, FEP service for a plurality of SCPs being separate from the first network element and eliminating the need for individual front end processors at the SCPs, wherein providing FEP service includes:

(a) at [[a]] the first network element having a first SS7 point code (PC), receiving a data packet having a first SS7 destination point code (DPC) from a first communications network;

(b) determining whether the received data packet is intended for an SCP or database node that is provisioned to receive front end processing (FEP) service;

(c) in response to determining that the received data packet is intended for an SCP or database node that is provisioned to receive FEP service, performing a lookup in a database access control (DAC) database using key information contained in the received data packet;

(d) modifying the received data packet based on information returned by the DAC database lookup; [[and]]

(e) transmitting the modified data packet ~~into a second communications network~~ to one of the SCPs over a second communications network.

38. (Original) The method of claim 37 wherein the key information includes a subsystem number (SSN) value.

39. (Original) The method of claim 37 wherein the received data packet is a signaling system 7 (SS7) signaling message.

40. (Original) The method of claim 39 wherein the SS7 signaling message is a transaction capabilities application part (TCAP) message signaling unit (MSU).

41. (Original) The method of claim 40 wherein the TCAP MSU contains an SCP or database query message.

42. (Original) The method of claim 37 wherein the first communications network is an SS7 network.

43. (Original) The method of claim 37 wherein the second communications network is an Internet protocol (IP) network.

44. (Original) The method of claim 37 wherein determining whether the received data packet is destined for an SCP or database node that is provisioned to receive front end processing (FEP) service includes examining the DPC value in the received data packet.

45. (Original) The method of claim 44 wherein determining whether the received data packet is destined for an SCP or database node that is provisioned to receive front end processing (FEP) service further includes examining a destination subsystem (SSN) value in the received data packet.

46. (Original) The method of claim 44 wherein the DPC is the same as the PC assigned to the first network element.

47. (Original) The method of claim 45 wherein the destination SSN value corresponds to a SSN that is provisioned for FEP service.

48. (Original) The method of claim 37 wherein the key information includes the first DPC and a SSN value.

49. (Original) The method of claim 37 wherein the key information includes a translation type (TT) value.

50. (Original) The method of claim 37 wherein modifying the received data packet includes modifying a packet routing label in the received data packet.

51. (Original) The method of claim 50 wherein modifying the routing label includes modifying the routing label based on SCP or database node operational status information contained within the DAC database.

52. (Original) The method of claim 50 wherein modifying the routing label includes modifying the routing label based on SCP or database node congestion status information contained within the DAC database.

53. (Original) The method of claim 50 wherein modifying the routing label includes modifying the routing label based on SCP or database node ownership information contained within the DAC database.

54. (Original) The method of claim 50 wherein modifying the routing label includes modifying the routing label to include a destination IP network address.

55. (Original) The method of claim 37 wherein modifying the received data packet includes changing a protocol of a database query statement contained in the received packet.

56. (Original) The method of claim 55 wherein changing a protocol includes changing the protocol based on SCP or database node protocol information contained within the DAC database.

57. (Currently Amended) A network element for providing service control point (SCP) or database node front end processing (FEP) service and routing data packets through a communications network, the network element comprising:

(a) a communication module capable of receiving data packets from a first communications network and transmitting data packets to a second communications network;

(b) a packet discrimination process for determining whether a data packet received from the first communications network is intended for an SCP or database node that is provisioned to receive front end processing (FEP) service;

(c) a database access control (DAC) database containing information related to SCP or database nodes that are provisioned to receive FEP service; and

(d) a DAC process for querying the DAC database and modifying the received data packet to include information returned by the DAC database, wherein the network element is adapted to provide FEP service for a plurality of SCP or database nodes being separate from the network element and to eliminate the need for the SCP or database nodes to have individual front end processors.

58. (Original) The network element of claim 57 wherein the packet discrimination process is adapted to examine a subsystem number (SSN) value in the received data packet.

59. (Original) The network element of claim 57 wherein the received data packet is a signaling system 7 (SS7) signaling message.

60. (Original) The network element of claim 59 wherein the SS7 signaling message is a transaction capabilities application part (TCAP) message signaling unit (MSU).

61. (Original) The network element of claim 60 wherein the TCAP MSU contains a database query message.

62. (Original) The network element of claim 57 wherein the first communications network is an SS7 network.

63. (Original) The network element of claim 57 wherein the second communications network is an Internet protocol (IP) network.

64. (Original) The network element of claim 57 wherein the DAC database includes a plurality of records and each DAC database record includes an IP network address associated with an SCP or database node.

65. (Original) The network element of claim 57 wherein the DAC database includes a plurality of records and each DAC database record includes operational status information associated with an SCP or database node.

66. (Original) The network element of claim 57 wherein the DAC database includes a plurality of records and each DAC database record includes ownership information associated with an SCP or database node.

67. (Original) The network element of claim 57 wherein the DAC database includes a plurality of records and each DAC database record includes database protocol information associated with an SCP or database node.

68. (Original) The network element of claim 57 wherein the DAC database includes a plurality of records and each DAC database record includes service type identification information associated with an SCP or database node.

69. (Original) The network element of claim 68 wherein the service type identification information is a subsystem number (SSN) value.

70. (Original) The network element of claim 68 wherein the service type identification information is a translation type (TT) value.

71. (Original) The network element of claim 68 wherein the service type identification information identifies a calling name (CNAM) service.

72. (Original) The network element of claim 68 wherein the service type identification information identifies a line information database (LIDB) service.

73. (Original) The network element of claim 68 wherein the service type identification information identifies a toll free number (800) service.

74. (Original) The network element of claim 68 wherein the service type identification information identifies a local number portability (LNP) service.

75. (Original) The network element of claim 68 wherein the service type identification information identifies a presence service.

76. (Original) The network element of claim 57 wherein the DAC database is integral with and contained within the network element.

77. (Original) The network element of claim 57 wherein the DAC database is located on an external database server that is communicatively coupled to the network element.

78. (Original) The network element of claim 57 wherein data that comprises the DAC database is maintained in high speed, random access memory.

79. (Original) The network element of claim 57 wherein data that comprises the DAC database is maintained on high speed, optical disc storage media.

80. (Original) The network element of claim 57 including a DAC protocol translation process.

81. (Original) The network element of claim 80 wherein the DAC protocol translation process is capable of translating an SCP or database query to or from a structured query language (SQL) database protocol.

82. (Original) The network element of claim 80 wherein the DAC protocol translation process is capable of translating an SCP or database query to or from an open database connectivity (ODBC) database protocol.

83. (Original) The network element of claim 57 wherein the packet discrimination process is adapted to examine a destination network address in the received data packet.

84. (Original) The network element of claim 83 wherein the destination network address is an SS7 destination point code (DPC) and a subsystem (SSN).

85. (Original) The network element of claim 84 wherein the SS7 DPC is the same as an SS7 PC assigned to the network element.

86. (Original) The network element of claim 84 wherein the SSN corresponds to an SSN that is provisioned for FEP service.

87. (Original) The network element of claim 57 wherein the packet discrimination process is adapted to examine a translation type (TT) value in the received data packet.

88. (Currently Amended) A network routing element for routing signaling messages having a first signaling system 7 (SS7) network address, the network routing element being adapted to receive messages addressed to the first SS7 network address intended for processing by a service control point (SCP) or database

node that resides in an Internet protocol (IP) network, the network routing element comprising:

(a) a communication module capable of receiving data packets from a first communications network and transmitting data packets to a second communications network;

(b) a packet discrimination process for determining whether a data packet received from the first communications network is intended for an SCP or database node that is located in an IP network;

(c) a database access control (DAC) database containing IP routing address information related to SCP or database nodes that reside in the IP network; and

(d) a DAC process for querying the DAC database and modifying the received data packet to include IP routing address information returned by the DAC database, wherein the network element is adapted to provide FEP service for a plurality of SCP or database nodes being separate from the network element and to eliminate the need for the SCP or database nodes to have individual front end processors.

89. (Original) The network element of claim 88 wherein the packet discrimination process is adapted to examine a subsystem number (SSN) in the received data packet.

90. (Original) The network element of claim 88 wherein the received data packet is a signaling system 7 (SS7) signaling message.

91. (Original) The network element of claim 90 wherein the SS7 signaling message is a transaction capabilities application part (TCAP) message signaling unit (MSU).

92. (Original) The network element of claim 91 wherein the TCAP MSU contains a database query message.

93. (Original) The network element of claim 88 wherein the first communications network is an SS7 network.

94. (Original) The network element of claim 88 wherein the first communications network is an Internet protocol (IP) network transporting IP encapsulated SS7 MSUs.

95. (Original) The network element of claim 88 wherein the second communications network is an asynchronous transfer mode (ATM) network.

96. (Original) The network element of claim 88 wherein the second communications network is an IP network.

97. (Original) The network element of claim 88 wherein the DAC database includes a plurality of records and each DAC database record includes an IP network address associated with an SCP or database node.

98. (Original) The network element of claim 88 wherein the DAC database is integral with and contained within the network element.

99. (Original) The network element of claim 88 wherein the DAC database is located on an external database server that is communicatively coupled to the network element.

100. (Original) The network element of claim 88 wherein data that comprises the DAC database is maintained in high speed, random access memory.

101. (Original) The network element of claim 88 wherein data that comprises the DAC database is maintained on high speed, optical disc storage media.

102. (Original) The network element of claim 88 including a DAC protocol translation process.

103. (Original) The network element of claim 102 wherein the DAC protocol translation process is capable of translating an SCP or database query to or from a structured query language (SQL) database protocol.

104. (Original) The network element of claim 102 wherein the DAC protocol translation process is capable of translating an SCP or database query to or from an open database connectivity (ODBC) database protocol.

105. (Original) The network element of claim 88 wherein the packet discrimination process is adapted to examine a destination network address in the received data packet.

106. (Original) The network element of claim 105 wherein the destination network address is an SS7 destination point code (DPC) and subsystem (SSN).

107. (Original) The network element of claim 106 wherein the SS7 DPC is the same as the first SS7 PC assigned to the network element.

108. (Original) The network element of claim 88 wherein the packet discrimination process is adapted to examine a translation type (TT) value in the received data packet.

109. (New) The network element of claim 1 wherein providing FEP service for a plurality of SCP or database nodes comprises providing front end processing service at a signal transfer point (STP).

110. (New) The method of claim 37 wherein providing FEP service from the first network element comprises providing front end processing service from a signal transfer point (STP).

111. (New) The network element of claim 57 wherein providing FEP service for a plurality of SCP or database nodes comprises providing front end processing service at a signal transfer point (STP).

112. (New) The network routing element of claim 88 wherein providing FEP service for a plurality of SCP or database nodes comprises providing front end processing service at a signal transfer point (STP).